DOCUMENT RESUME

ED 289 667 RC 016 534

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TITLE Congruence between Learning Styles of Cree, Dene and Metis Students, and Instructional Styles of Native and Non-Native Teachers.
PUB DATE Oct 86
NOTE 26p.; Paper presented at the Mokakit Conference of the Indian Education Research Association (Winnipeg, Manitoba, Canada, October 17-19, 1986).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *American Indian Education; American Indians; *Canada Natives; *Cognitive Style; Comparative Analysis; Foreign Countries; Secondary Education; Statistical Data; *Student Attitudes; Student Characteristics; *Teacher Attitudes; Teacher Characteristics; *Teaching Styles; Tribes
IDENTIFIERS Canada; Canfield Learning Styles Inventory; Cree (Tribe); Dene (Nation); Metis (People); *Saskatchewan

ABSTRACT

To ascertain possible differences and similarities in learning styles of Cree, Dene (Chipewyan), and Metis students and the instructional styles of Native and non-Native teachers in northern Saskatchewan, Canfield's Instructional Styles Inventory was administered to 280 grade 7-9 students (81 Cree, 65 Dene, and 134 Metis) and 79 teachers (15 Native and 64 non-Native). Results showed significant differences on four scales of learning style, indicating Dene students were less negative towards a competitive learning situation; were least negative to learning through written material; and had less preference for learning by direct experience than Cree or Metis students. Findings also indicated non-Native teachers more strongly preferred to teach from logically and clearly organized materials than did Native teachers and Native teachers were more likely to encourage students to work independently. Although both Native and non-Native teachers were congruent on more than 65% of all instructional/learning components with all student groups, it was found that Native teachers were congruent with all student groups at a higher percentage and on a greater number of components than was true for non-Native teachers. (NEC)

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CONGRUENCE BETWEEN LEARNING STYLES OF CREE, DENE AND METIS STUDENTS, AND INSTRUCTIONAL STYLES OF NATIVE AND NON-NATIVE TEACHERS

The Presentation Paper at the Mokakit Indian Education Research Association Conference, Winnipeg, Manitoba, Canada
October 17-19, 1986

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INTRODUCTION

Unlike the detailed attention given to Native teacher education and Native curriculum development in Saskatchewan since 1973, improvements in teaching methods for Native students have been given only minor consideration by governments and Native organizations. Therefore, beyond the concerns about 'who is teaching' and 'what is being taught', the question remains: how is teaching to be done in order to maximize learning?

Efforts to improve education for Native peoples in Saskatchewan have been undertaken since 1973 in the area of Native teacher education programs. In 1973, the Indian Teacher Education Program (ITEP) was implemented jointly by the Saskatchewan Indian Cultural College and the University of Saskatchewan. This was the first teacher education program in Saskatchewan to "provide Native people with the opportunity to become proficient teachers" (Indian Teacher Education Program, 1985, p.1). According to the record of ITEP graduates, compiled in November, 1985 by the ITEP office, 90 of 132 graduates, or 68.2 percent, were listed as having been hired as teachers. In addition, among ITEP graduates, there were three principals, one vice-principal and nine educational co-ordinators and counsellors.

In 1976, the Northern Teacher Education Program (NORTEP) was established in Lac La Ronge, Saskatchewan, as a teacher education program for Native students. An agreement between the Northern Lights School Division #113 (NLSD) and the province of Saskatchewan provided for delivery of NORTEP in conjunction with the University of

Saskatchewan and the University of Regina. Prior to the beginning of NORTEP in 1976, 98 percent of teachers in Northern Saskatchewan schools were English-speaking Canadians from other areas (Cook & More 1979). As of September 10, 1985, 36 Native teachers were employed by NLSD, or 14.06 percent of the total of 256 teachers. Among the 36 Native teachers working for NLSD, 78 percent were NORTEP graduates as reported by the Director of NORTEP (Cook, April 13, 1986).

The Saskatchewan Urban Native Teacher Education Program (SUNTEP) was established in 1980 to provide training for urban Native students. Programs were set up in Regina, Saskatoon and Prince Albert under the direction of the Gabriel Dumont Institute of Native Studies and Applied Research, in co-operation with the University of Regina and the University of Saskatchewan (Birnie & Ryan 1983, Bouvier 1984). By 1985, SUNTEP had produced 20 graduates with Bachelor of Education degrees or Standard "A" teaching certificates. Nineteen of those were employed in educational institutions with one-half of them teaching in the provincial school system (Saskatchewan Human Rights Commission, 1985).

In part, these programs have been premised on the reasoning that it is Native peoples who have the most intimate understanding of Native traditions, customs and languages. As such, it is they who will be "best able to create the learning environment suited to the habits and interests of the Indian child" (National Indian Brotherhood, 1972, p.18). Furthermore, the Saskatchewan Human Rights Commission in the report entitled Education Equity (September, 1985), concluded that "persons of Indian ancestry are not receiving equal benefits from the education system of Saskatchewan" (p.79). The report recommended

filling teaching positions with qualified teachers of Indian ancestry in numbers equal to the proportion of students of Indian ancestry enrolled in schools of Saskatchewan.

Since 1982, Native curriculum development in Saskatchewan has also received considerable attention. It has been said by members of the Native community and other critics of the education system, that through school curricula, Native peoples are "often cast in an unfavorable light" (National Indian Brotherhood, 1972, p.9). If sensitized to Native perspectives, school curricula should include positive, accurate and up-to-date programs for both Native and non-Native students.

On September 27, 1982, the Native Curriculum Review Committee was established in Saskatchewan "to recommend to the Department of Education principles for curriculum development as they apply to Native students" (Minister's Advisory Committee on Native Curriculum Review, 1984, p.49). In March 1984, this Committee released a report titled A Five Year Action Plan for Native Curriculum Development. In this report, twelve recommendations were made regarding the development of Native curricula. After the recommendations were accepted by the Minister, a new committee called the Indian and Metis Curriculum Advisory Committee was formed to incorporate Indian and Metis content into the provincial core curriculum which was being designed in the 1980s.

Among initiatives taken to improve Native curricula, teaching and learning materials have been designed for the Grade VIII Social Studies program, entitled Apihtawkosan: the Story of the Metis Nation in Western Canada (Dorion & Dorion, 1982). These materials include both a student activity book and a teacher's guide and resource book. A similar

package of teaching and learning materials is the textbook titled The Riel Rebellion: Biographical Approach (Hou & Hou, 1984). These teaching and learning materials have been designed to be used as a part of "locally determined courses" of the Middle Level (grades six to nine) which was proposed by the Core Curriculum Advisory Committee in the report, Program Policy Proposals released in January, 1986.

Although teacher training and curriculum innovations have been undertaken in an effort to improve Native education, few developments have been initiated in the area of improving teaching methods. Research has indicated that Native children process information in a manner different from that of non-Native children (e.g., Goodenough, 1926; Telford, 1932; Berry 1966 & 1971; Steward, 1971; Bland, 1975; Koenig, 1981; Kaulback, 1984). In addition, the Native Curriculum Review Committee also stated as one of the principles and guidelines for Native curriculum development:

> There shall be a recognition that children exhibit different learning styles but that these learning styles cut across cultural and socio-economic groups (Minister's Advisory Committee on Native Curriculum Review, 1984, p.3).

The present study was conducted to provide information concerning possible differences and similarities in learning styles of Cree, Dene (the tribal name is Chipewyan) and Metis students, and the instructional styles of Native (Cree or Metis with Cree background) and non-Native teachers in Northern Saskatchewan. To chieve this goal, the study tested the following three steps of research hypotheses: (1) Differences would be found in the preferred learning styles of students of Cree,

Dene, Metis backgrounds, (2) differences would be found in the preferred instructional styles of Native and non-Native teachers, and (3) congruence would be more likely to be found between learning styles of Cree, Dene and Metis students and instructional style of Native teachers, than it would be between learning styles of Cree, Dene and Metis students and instructional style of non-Native teachers.

METHOD OF THE STUDY

Sample

The researcher focused in the areas of Northern Saskatchewan where a variety of small communities had relatively intact Native cultures. Six schools in the northwest area of Northern Saskatchewan were selected. To execute the research in this area, permission was requested by letter from the two school boards: Northern Lights School Division No. 113 and the Board of Education of the Ile a la Crosse School Division. The total sample of 359 was comprised of 280 students and 79 teachers.

For the student sample, Division III (grade seven to nine) was selected because the English reading level of students was adequate to respond to the inventory. A second consideration was the high drop-out rate in these grades among Native students. Based on students' self-perceptions of cultural backgrounds, the members of cultural groups were identified as 81 Cree, 65 Dene and 134 Metis. The sample consisted of 129 male students and 151 female students. Average ages of students

are 14.19 years for Cree, 15.26 years for Dene, and 14.10 years for Metis.

The teacher sample was collected the same six schools. Since not many Native teachers were teaching in Division III, all Native and non-Native teachers on staff in each school were asked to respond to the questions of the inventory. Therefore, the teacher sample consisted of teachers who taught at various grade levels and did not necessarily teach the students in the student sample. The 64 of teachers (38 male and 26 female teachers) identified their cultural background as non-Native, while 15 teachers (7 male and 8 female teachers) identified themselves as Native. Since only a small proportion of Native teachers compared to non-Native teachers are employed in Northern Saskatchewan, the teacher sample in this study contained a correspondingly smaller proportion of Native teachers in Northern Saskatchewan. The distribution of teachers on the basis of age showed that 25 teachers (31.6 %) were between 20 and 29 years old, 33 teachers (41.8 %) between 30 and 39 years of age, and 21 (26.6%) teachers above 40 years of age.

Instruments

Canfield's Learning Styles Inventory: Form E (CLS-Form E) and Canfield's Instructional Styles Inventory (CIS) were the instruments used in this study. CLS-Form E is an instrument designed to measure the learning style preferences of individuals, while CIS is designed to measure instructional style preferences. Scores on these two inventories are compared to assess the existence of congruence between learning and instructional styles.

CLS-Form E is composed of 30 items which require the subject to rank four options in order of preference for each item. It is to be used with students who have fifth grade reading levels or above. On the other hand, CIS consists of 25 items which also contain four ranking choices for each. As with CLS-Form E, the subjects are required to rank these four options in order of preference. The mean scores of 15.00 for CLS-From E and 12.50 for CIS indicate neither a high nor a low preference in each learning/instructional style scale. Since a first choice on each item (question) gives a score of one, the lower the score, the higher the preference.

There are three categories for 16 learning/instructional scales common to CLS-Form E and CIS: namely, (1) Conditions, (2) Content and (3) Mode (Canfield, 1980, 1976).

(1) CONDITIONS: This category measures student preferences for learning conditions and measures those conditions under which students perform best. The conditions are divided into eight scales with both CLS-Form E and CIS.

Peer [P]

Learning Style: Working in student teams; good relations with other students; having student friends.

Instructional Style: Having students work in teams; encouraging good relations among students; having students become friends.

Organization [O]

Learning Style: Desiring course work which is logically and clearly organized; meaningful assignments and sequence of activities.

Instructional Style: Organizing course work logically and clearly; giving meaningful assignments and sequence of instructional activities.

Goal Setting [G]

Learning Style: Setting one's own objectives; using feedback to modify goals and procedures; making one's own decisions on objectives.

Instructional Style: Letting students set their own objectives; providing feedback to help them modify goals and procedures; letting students make their own decisions on objectives.

Competition [C]

Learning Style: Desiring competition with others; the need to know how one is doing in relation to others.

Instructional Style: Creating situations where students are compared with one another; getting students to compete among themselves.

Instructor [Is]

Learning Style: Knowing the instructor personally; having mutual understanding; liking one another.

Instructional Style: Encouraging the students to know the instructor personally; developing mutual understanding; liking one another.

Detail [De]

Learning Style: Requiring specific information on assignments, requirements, rules, etc.

Instructional Style: Providing specific information on assignments, rules, requirements, etc.

Independence [Id]

Learning Style: Working alone and independently; determining one's own study plan; doing things for oneself.

Instructional Style: Encouraging students to work alone and independently; letting them plan for themselves.

Authority [A]

Learning Style: Desiring classroom discipline and maintenance of order; having informed and knowledgeable instructors.

Instructional Style: Maintaining classroom discipline and order; setting high standards and demanding student performance.

(2) CONTENT: This category measures the comparative interest of students and teachers in the curriculum. The content consists of the four different scales of typical curriculum in both CLS-Form E and CIS. In this category, the scales of learning style assessed by CLS Form E possess the same meanings as those of instructional style by CIS.

Numeric [N]

Learning and Instructional Style: Learning and teaching about numbers and logic; computing, solving mathematical problems, etc.

Qualitative [Q]

Learning and Instructional Style: Learning and teaching about words or language; writing, editing, talking.

Inanimate [Ia]

Learning and Instructional Style: Learning and teaching about working with things: building, repairing, designing, operating.

People [P]

Learning and Instructional Style: Learning and teaching about working with people; interviewing, counseling, selling, helping.

(3) MODE: This category measures the comparative preferences for the different modes of learning and instructional processes. The mode

consists of four different preferred instructional processes from the learners' perspective (CLS-Form E) and four different preferred approaches of the instructors (CIS).

Listening and Lecturing [L]

Learning Style: (Listening) Hearing information; tapes, lectures, speeches, etc.

Instructional Style: (Lecturing) Giving information by lectures, tapes, speeches, etc.

Reading [R]

Learning Style: Examining the written word; reading texts, pamphlets, etc.

Instructional Style: Providing written words as in reading texts, pamphlets, etc.

Iconics [Ic]

Learning Style: Viewing visual materials: movies, slides, pictures, graphs, etc.

Instructional Style: Showing visual materials such as movies, slides, pictures, graphs, etc.

Direct Experience [Di]

Learning Style: Students engaged in laboratory, shop and field trip exercises, etc.

Instructional Style: Organizing students for shop, laboratory and field trip exercises, etc.

Procedure

The researcher visited six schools in Northern Saskatchewan between Feburary and April, 1986. In each school, during class time, Canfield's Learning Styles Inventory was administered to groups of students from grades seven to nine. For most grade seven classes, and some of the grade eight and nine classes, the researcher conducted the assessment with an oral explanation. Since some students were observed to have difficulties comprehending the questions of the inventory written in English, they were excluded from the study on the advice of class teachers. In each school, Canfield's Instructional Styles Inventory was administered to teachers individually or in small groups.

RESULTS

Differences in Learning Styles of Cree, Dene and Metis Students

Standard deviations and mean scores on the 16 learning style scales among Cree, Dene and Metis students are shown in Table 1. The group differences in learning style scales were analyzed by one-way ANOVA as shown in Table 2. There were significant differences found in four learning style scales: Competition ($F=5.45$, $p<.01$), Reading ($F=6.55$, $p<.01$), Iconics ($F=5.10$, $p<.01$) and Direct Experience ($F=3.34$, $p<.05$) scales showed differences among the means of Cree, Dene and Metis student groups.

The Student-Newman-Keuls (SNK) tests for differences between means revealed significant differences among Dene ($M=15.80$), Cree ($M=16.88$) and Metis ($M=17.24$) students on the Competition scale. This result

suggested that Dene students showed less negative reaction towards a competitive learning situation than did Cree and Metis students. On the Reading scale, the SNK tests showed significant differences among the means of Dene (M=15.25), Metis (M=16.84) and Cree (M=17.17) students. Although Dene students expressed a low preference for learning through written materials in the mean score, the result suggested that Dene students had the least negative reaction to learning through written

Table 1

Means Scores of Cree, Dene and Metis Students on the Learning Style Scales (N=280: Cree=81, Dene=65, Metis=134)

Scale	Cree		Dene		Metis	
	Mean	SD	Mean	SD	Mean	SD
(1) Conditions						
Peer[P]	12.98	3.53	13.82	3.23	12.60	3.29
Organization[O]	14.86	3.09	14.75	2.54	14.26	3.16
Goal Setting[G]	15.25	3.06	15.63	3.92	15.90	3.02
Competition[C]	16.88	2.84	15.80	2.54	17.24	3.08
Instructor[Is]	13.56	3.26	13.54	3.09	13.13	3.40
Detail[De]	14.23	3.08	14.31	2.71	13.97	3.11
Independence[Id]	16.73	3.49	16.54	3.12	17.37	3.20
Authority[A]	15.60	3.66	15.62	3.23	15.52	3.57
(2) Content						
Numeric[N]	16.28	3.28	15.03	3.32	16.24	4.16
Qualitative[Q]	15.95	3.76	14.75	2.96	15.11	3.11
Inanimate[Ia]	11.90	3.59	13.28	3.66	12.72	3.68
People[P]	15.88	2.98	16.94	2.88	15.91	3.24
(3) Mode						
Listening[L]	16.49	3.38	15.52	2.78	16.04	3.03
Reading[R]	17.17	3.55	15.25	3.17	16.84	3.46
Iconics[Ic]	13.20	3.42	14.74	3.77	13.05	3.67
Direct Experience[Di]	13.14	3.25	14.57	3.54	14.07	3.55

Table 2
One-Way Analyses of Variance of Scores on the Learning Style Scales among Cree, Dene and Metis Students with Newman-Keuls Comparisons (N=280)

Scale		SS	df	MS	F	Newman-Keuls
(1) Conditions						
Peer	Between	64.96	2	32.50	2.90	3 1 2
	Within	3103.97	277	11.21		
Organization	Between	21.87	2	10.94	1.21	3 2 1
	Within	2507.43	277	9.05		
Goal Setting	Between	21.26	2	10.63	1.17	1 2 3
	Within	2508.74	277	9.06		
Competition	Between	91.28	2	45.64	5.45 **	2 1 3
	Within	2321.52	277	8.38		
Instructor	Between	12.40	2	6.20	0.57	3 2 1
	Within	3003.00	277	10.84		
Detail	Between	6.36	2	3.18	0.35	3 1 2
	Within	2518.27	277	9.09		
Independence	Between	38.46	2	19.23	1.80	2 1 3
	Within	2955.52	277	10.67		
Authority	Between	0.54	2	0.27	0.02	3 1 2
	Within	3430.18	277	12.38		
(2) Content						
Numeric	Between	75.01	2	37.50	2.68	2 3 1
	Within	3870.77	277	13.97		
Qualitative	Between	58.19	2	29.09	2.70	2 3 1
	Within	2983.18	277	10.77		
Inanimate	Between	71.12	2	35.56	2.67	1 3 2
	Within	3687.45	277	13.31		
People	Between	54.12	2	27.06	2.84	1 3 2
	Within	2637.44	277	9.52		
(3) Mode						
Listening	Between	34.02	2	17.01	1.79	2 3 1
	Within	2635.28	277	9.51		
Reading	Between	153.36	2	76.68	6.55 **	2 3 1
	Within	3243.35	277	11.71		
Iconics	Between	133.92	2	66.96	5.10 **	3 1 2
	Within	3636.03	277	13.13		
Direct Experience	Between	80.10	2	40.05	3.34 *	1 3 2
	Within	3323.84	277	11.99		

Note 1. Groups: 1 = Cree; 2 = Dene; 3 = Metis. **$p<.01$. Note 2. Groups underlined by a line differ significantly from groups underlined by another line.

materials of all Native groups. On the Iconic scale, the SNK tests showed significant differences among the means of Metis ($\underline{M}$=13.05), Cree ($\underline{M}$=13.20) and Dene ($\underline{M}$=14.74) students. The result indicated that Cree and Metis students had a significantly higher preference for seeing movies, slides, pictures and graphs as a mode of learning, than did Dene students. On the Direct Experience scale, the SNK tests for differences among means showed significant differences between Cree($\underline{M}$=13.14) and Dene ($\underline{M}$=14.57) students. This result indicated that Cree students expressed a significantly higher preference for learning by direct experience than did Dene students.

Differences in Instructional Styles Between Native and Non-Native Teachers

A series of one-way ANOVA on the basis of cultural groups were conducted to determine similarities and differences between the mean scores of Native and non-Native teachers. As shown in Table 3, significant differences were found on scores of two of the 16 scales of instructional style: Organization (F=4.16, $\underline{p}$<.05) and Independence (F=10.59, $\underline{p}$<.01). No significant differences were found on scores of the remaining 14 scales. According to the SNK test, on the Organization scale, non-Native teachers ($\underline{M}$=11.00) indicated a significantly higher preference for organizing course work logically, clearly and sequentially than Native teadchers ($\underline{M}$=9.73). On the Independence scale, although Native teachers ($\underline{M}$=12.20) showed neither a high nor a low preference for encouraging students to work alone and independently. The result indicated that non-Native teachers reacted more negatively than

did Native teachers to encouraging students to work alone and independently.

Table 3

One-Way Analysis of Variance of Scores on the Instructional Style Scales of Native and Non-Native Teachers with Newman-Keuls Comparison (N=79: Native N=15; Non-Native N=64)

Scale	df	Native		Non-Native		F-Ratio	Newman-Keuls
		Mean	SD	Mean	SD		
(1) Conditions							
Peer	1	11.40	2.87	11.75	2.59	0.21	1 2
Organization	1	11.00	2.39	9.73	2.11	4.16*	2 1
Goal Setting	1	13.06	3.28	13.42	2.44	0.23	1 2
Competition	1	14.53	2.36	15.09	2.83	0.51	1 2
Instructor	1	11.00	2.51	10.11	3.02	1.12	2 1
Detail	1	13.27	1.67	13.00	2.87	0.12	2 1
Independence	1	12.20	2.70	14.66	2.61	10.59**	1 2
Authority	1	13.53	3.54	12.23	2.65	2.56	2 1
(2) Content							
Numeric	1	14.13	2.90	14.28	3.20	0.03	1 2
Qualitative	1	11.20	2.48	11.75	2.80	0.49	1 2
Inanimate	1	13.73	3.83	13.75	2.90	0.00	1 2
People	1	10.93	3.33	10.30	3.25	0.46	2 1
(3) Mode							
Lecturing	1	14.33	2.38	13.77	2.31	0.73	2 1
Reading	1	12.40	2.77	13.44	2.43	2.10	1 2
Iconics	1	11.80	2.76	11.33	2.57	0.40	2 1
Direct Experience	1	11.47	2.92	11.31	3.31	0.03	2 1

Note 1. Groups: Native = 1; Non-Native = 2. *$p<.05$. **$p<.01$.
Note 2. Groups underlined by a line differ significantly from groups underlined by another line.

Congruence Between Learning Styles of Cree, Dene and Metis Students, and Instructional Styles of Native and Non-Native Teachers

The results of one-way ANOVA for Cree, Dene and Metis students, and Native and non-Native teachers together on the 16 learning/instructional style scales yielded significant differences on nine scales out of 16 scales. The results of the Newman-Keuls Comparisons were summarized in Table 4; 'X' indicating differences between Native teachers and the Cree, Dene and Metis students, and '9' indicating differences between non-Native teachers and the three cultural groups of students.

On the basis of the Newman-Keuls Comparisons, significant differences in learning/instructional style between Native teachers and Cree, Dene and Metis students appeared in 7 cases out of a possible combinations of 48 cases, or in 14.6 percent of cases, while non-Native teachers and the same cultural groups of students showed incongruency in 16 cases out of 48, or 33.3 percent. These results were also considered as a congruency rate of 85.4 percent (41 matched cases) for Native teachers, and 66.7 percent (32 matched cases) for non-Native teachers. Although both Native and non-Native teachers were congruent on more than 65 percent of all components, it was found that Native teachers were congruent with all students at a higher percentage and on a greater number of matching combinations than was true for non-Native teachers.

Differences between the instructional styles of Native and non-Native teachers, and the learning styles of Cree, Dene and Metis students could be summarized as follows. (1) On Inanimate and People scales, the instructional styles of both Native and non-Native teachers

Table 4

Differences between Instructional Style Preferences of Native and Non-Native Teachers and Learning Style Preferences of Cree, Dene and Metis Students According to Newman-Keuls Comparisons

Scale	Cree		Dene		Metis	
(1) Conditions						
Peer					X	
Organization	X		X		X	
Goal Setting						
Competition			X			
Instructor						
Detail	X		X		X	
Independence						♀
Authority						
(2) Content						
Numeric			X			
Qualitative	X					
Inanimate	X	♀	X	♀	X	♀
People	X	♀	X	♀	X	♀
(3) Mode						
Lecturing						
Reading						
Iconics						
Direct Experience						
Total Difference	X = 5 ♀ = 2		X = 6 ♀ = 2		X = 5 ♀ = 3	

Note. X = Significantly different from instructional style of Non-Native teachers. ♀ = Significantly different from instructional style of Native teachers.

were incongruent with the learning styles of Cree, Dene and Metis student groups. (2) On Organization and Detail scales, the instructional style of non-Native teachers was incongruent with the learning styles of all student groups, while the instructional style of Native teachers was congruent. (3) On Competition and Numeric scales, the instructional

style of non-Native teachers was incongruent with the learning style of Dene students whose learning style was congruent with the instructional style of Native teachers. (4) On Independence scale, the instructional style of Native teachers was incongruent with the learning style of Metis students whose learning style was congruent with the instructional style of non-Native teachers. (5) On Peer scale, the instructional style of non-Native teachers was incongruent with the learning style of Metis students whose learning style was congruent with the instructional style of non-Native teachers. (6) On Qualitative scale, the instructional style of non-Native teachers was incongruent with the learning style of Cree students whose learning style was congruent with the instructional style of Native teachers.

DISCUSSION

Research studies have indicated that Native students process information in a manner different from that of non-Native students (Goodenough, 1926; Telford, 1932; Berry 1966 & 1971; Bland, 1975; Downing, 1977; Wyatt, 1978; Koenig, 1981; Kaulback, 1984; Pepper, 1985). These studies, however, often neglected to investigate the differences among Native people. Therefore, differences among Native groups of students were tested in this study. The study indicated significant differences on four scales of learning style. All these scales indicated that Dene differs Cree and/or Metis in learning style. According to the results, Dene may be characterized to be less negative towards a competitive learning situation (Competition scale), least negative reaction to learning through written materials (Reading scale),

and less preference for seeing movies, slides, pictures and graphs than Cree and Metis students. In addition, Dene showed less preference for learning by direct experience than Cree srudents (Direct Experience scale). This finding suggests that learning style differences exist among groups of Native students (Cree, Dene and Metis), especially between Cree and Dene students. Hence, it is important to realize that not all Native students, regardless of tribal culture and liguistical families, share the same preferences of learning style.

Dene (the tribal name of Chipewyan in this study) is a branch of the northern Athapaskan language family, while Cree belongs to the Algonquian language family. Differences in learning styles between Cree and Dene may reflect the cultural and linguistical differences influencing these two groups. Great similarities in learning styles between Cree and Metis is understandable, since Metis in Northern Saskatchewan historically originated from Cree background. However, only four scales or 25 percent of the totat of 16 scales presented significant differences among three groups. It could be concluded that Cree, Dene and Metis students share similar learning style in majority of scales, except that Dene indicated differences from Cree and Metis on about one-fourth of scales.

The results of one-way ANOVA for Native and non-Native teachers yielded significant differences on only two scales of instructional style or 12.5 percent of the total 16 scales. Differences could be summarized that non-Native teachers more strongly preferred to teach from logically and clearly organized materials than did Native teachers; on the other hand, Native teachers were more likely to encourage

students to work independently than was true of non-Native teachers. Generally, there were not many differences found on the scales of instructional styles between Native and non-Native teachers. This result may indicate expected roles of teachers, rather than cultural differences reflected in instructional styles.

The major question posed in this study was to assess whether preferred instructional styles of Native and non-Native teachers were congruent or incongruent with the preferred learning styles of Cree, Dene and Metis students. Neither group of teachers was congruent with all components of learning style preferences of any Native student group. Significant differences in learning/instructional style identified by the Newman-Keuls comparisons between Native teachers and Cree, Dene and Metis students appeared in seven cases out of 48 possible combinations of style component and cultural group, or 14.6 percent of the total. In 41 cases out of 48, or 85.4 percent, congruence was found. Non-Native teachers and the same cultural groups of students showed 16 mismatched cases out of 48, or 33.3 percent of cases of incongruence, and 32 matched cases, or 66.7 percent of instances of congruence between teachers and student groups.

Although both Native and non-Native teachers were congruent on more than 65 percent of all instructional/learning components with all student groups, it was found that Native teachers were congruent with all student groups at a higher percentage and on a greater number of components than was true for non-Native teachers. Difference in these levels of congruence may caused by the fact that Non-Native teachers tended to have come from outside of Northern Saskatchewan and grew up in

a different social and cultural milieu. Findings from this study suggest that if significant academic gains are made when instructional style is matched correctly with students' identified learning style (Downing, 1977; Wyatt, 1978; Dunn, 1983; Pepper, 1985), then Native teachers may have the potential to lead students in Northern Saskatchewan to a higher academic success. The necessity to hire Native teachers in Native schools has been discussed in the report of Indian Control of Indian Education (Native Indian Brotherhood, 1972) and recently by the Saskatchewan Human Rights Commission (1985). Hence, the results of this study will support this current proposal.

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